



MD 120. RVA 46 Controller Commissioning Data.

The RVA 46 3-Way Valve controller can only be used in conjunction with a MD 120 120-960 boiler installation that is being controlled via RVA47 controllers.

The RVA46 controller must be connected to LPB network utilized by the RVA47 controllers.

Dedicated connections points can be found in the wiring looms supplied with the RVA 47 and RVA46's. (Colour Coded Pink / Mauve)

The RVA 46 controller requires the installation of the following to enable the unit to operate without error signals being displayed on the fascia panel.

A Flow Sensor attached to the flow of the variable temperature circuit.
(After the Mixing Valve.)

An Outside Air Sensor attached to a North-facing wall. (If you do not wish to use the outside air temperature sensed by the Master RVA47 controller.)

To increase the controllability of the RVA46 unit a RE3231 room controller can be installed.

RVA 46 Fault Indication

If the sensors and communication wiring connected to the RVA46 controller fail or are removed from circuit, an error message will be displayed on the left of the LCD screen.

Error Message Notation Er.

Once an error message is present the cause of the error can be traced by accessing function [50].

To access function [50], Open the flap of the controller and press the down Prog button twice. [50] Should appear in the left-hand side of the LCD display.

The figure shown in the center of the screen is the fault identification number. The display can hold a number of faults but will only display 2 at any one time. The second error can be accessed by pressing the + or – buttons. Once a fault has been rectified the error number will disappear or be replaced with another fault number if further attention is required.

The fault identification numbers are detailed below.

Blank	No Fault.
10	Outside Air Temperature Sensor.
30	Flow Temperature Sensor
61	Fault Room unit.
81	Short Circuit on LPB Connection.
100	Two Clock Masters Present.
140	Incorrect Device or Segment Address
145	Wrong Device Connected to PPS Circuit.
150	General Burner Module Fault.

MD 120 Module Fault Indications.

Green Indicator Panels Not RVA 47 Screen

Fault Diagnosis

The control panel is divided into two sections: the left-hand section serves the lower heat exchanger, the right-hand section the upper heat exchanger.

The two-digit display provides the following information regarding the functioning of the MD 120

- a. In normal operating situations, the display always shows the flow temperature of the boiler water.
- b. Operating messages: these are always indicated by one digit.
- c. Fault messages (flashing display) with a two-digit code.
- d. System faults in the electronic section.

Operation indicator (nonflashing)

An operating message means that the burner of the heat exchanger concerned is not working, the reason being reported in the operating message.

If this situation has resolved itself after some time, the unit will automatically restart.

0. Unit prevented from operating. Syphon monitoring active

If the water level in the syphon has dropped, the unit will fire up automatically.

1. Unit prevented from operating. Water temperature too high, measured by the boiler thermostat.

If the water temperature drops by more than 20° C within 30 Seconds, the unit will start to operate; if such is not the case, the unit will lock up.

OR

1. Unit prevented from operating. Condensate syphon overflow

If the condensate produced by the unit is not allowed to pass from the unit to a suitable drain point the level switch located in the base of the flue gas tube will activate and prevent the unit from operating.

2. Unit prevented from operating. Water temperature too high, measured by the flow sensor.

When the water temperature drops by more than 20° C the unit will start to operate.

3. Unit prevented from operating. Anti-cycling time

When the anti-cycling time (3 mins.) has expired, the unit will automatically fire up again.

5. Unit prevented from operating. Combustion fan speed too high

The combustion fan has been switched off, but a speed indication is still detected. The MD 120 will be blocked and after 3 minutes, a locking (flashing) fault will be shown with the same text. If, however, the situation is resolved within 3 minutes, the unit will return to normal operating mode.

7. Unit prevented from operating. Combustion fan speed too low

If this code appears, the MD 120 will be blocked. If the speed has not returned to the normal value within 3 minutes, locking will take place. If the situation is resolved within this period, the unit will resume normal operation.

8. Unit prevented from operating. Flame simulation

Although the burner is not operative, a possible flame is being detected. If this code is shown, the burner control will be blocked. After five seconds, the burner control will be locked.

9. Unit prevented from operating. Limit temperature flue gases

If the flue gas temperature drops by more than 20° C, the unit will automatically fire up again; if such is not the case, the unit will lock up.

da.Communication between burner control and RVA47 interrupted.

The burner in question will not operate until the circuit is re-established.

db.Communication between burner control and the ignition control board interrupted

The burner in question will not operate until the circuit is re-established.

Commissioning mode

When the chimney sweep button is depressed, an "L" will be shown if the combustion fan speed is too low; if the button is depressed again, an "H" will appear to indicate that the speed is too high.

L Manual, 10 mins. minimum load

H Manual, 10 mins. maximum load

Fault indicator (flashing)

In spite of the fact that the unit has automatically made several attempts to resolve malfunctions, the unit is switched off after a number of attempts.

This fault is indicated by means of a flashing message.

The type of fault is indicated by a two-digit code: the first digit shows when the fault occurs, the second digit shows the nature of the fault; this means that any combination of digits may show, but some combinations will never occur.

First digit

1 = System test

2 = Stand by

3 = Pre-purge

4 = Pre-ignition

5 = Ignition

6 = Operation

7 = Post-purge

Second digit

1 = Maximum thermostat open, or water level in syphon too high

2 = Flue gas thermostat open

3 = Resistance in the flue gas tube is too high

4 = Unused figure

5 = Combustion fan speed too low

6 = Combustion fan speed too high

7 = No flame signal

For example, if the flashing fault code **6 7** appears, this means that the flame has disappeared several times during operation.

System faults

These faults are indicated with a letter, occasionally followed by a number.

To avoid confusion in the indication, the letters and numbers are fixed as follows.

E1 = Fault with Flow sensor

E2 = Fault with the cable for gas valve or gas valve coil

E3 = Fault with rectification circuit

E4 = Burner control circuit board has a fault

--- = Communication via RS232 connection possible

E5 = Parameter fault

E6 = Communication fault

End User Parameter Setting.

To enter the End User Parameter Program, the door must be opened and one of the UP or DOWN Prog buttons must be depressed.

A number between 1 & 50. Will appear in a bracket on the left of the display window. These can be paged through by using the UP or DOWN buttons.

To alter or input the required data in the selected program line # use the + or - buttons.

To leave the End User Parameter Setting Menu press the AUTO button.

The defaults indicated below are for standard systems.

If additional control features are required alteration will have to be made.

Please refer to the RVA47 manual for additional details.

#, -, --- Indicates where an input can be made if required.
 -- Indicates where an input can not be made and a sensed / attenuated figure is displayed. 'OFF' will be displayed if the +/- buttons are used.

<u>[Prog #]</u>	<u>Description of Prog #</u>	<u>Range</u>	<u>Inputs</u>	<u>Preset</u>
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Time of Day.

1	Time of day	0-23:59	Hr/Min	00:00
2	Weekday	1...7	Day	1

Time Switch Program Heating

5	Every day the same. Every day different.	1-7 1...7	Day Day	-
6	1 st On time.	- 24:00	Hr/Min	06:00
7	1 st Off time.	- 24:00	Hr/Min	22:00
8	2 nd On time	- 24:00	Hr/Min	-
9	2 nd Off time	- 24:00	Hr/Min	-
10	3 rd On time	- 24:00	Hr/Min	-
11	3 rd Off time	- 24:00	Hr/Min	-

Hot Water Service

12	HWS Operating Mode 0 HWS OFF 1 HWS ON	0/1		1
13	Required HWS temperature	40-60	°C	55

Heating Circuit

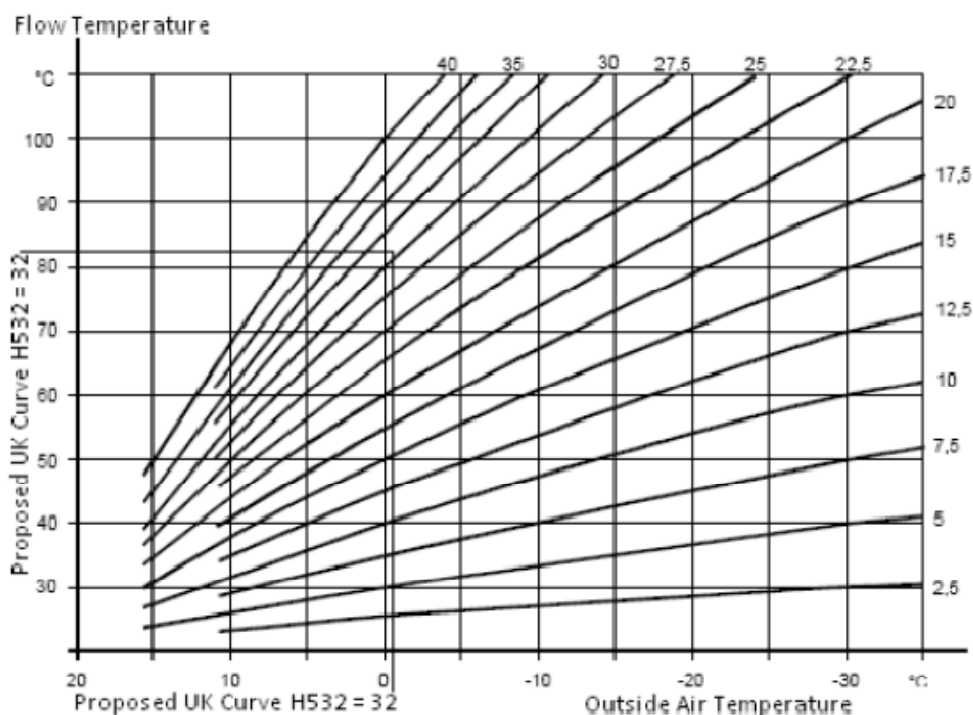
14	Night set back temperature	10-30	°C	16
15	Frost Protection temp	4-15	°C	10
16	Summer/Winter switching	8-30	°C	17
17	Slope of heating curve	-/2.5.40	-	32

Actual Values

18	Actual Room temperature	0-50	°C	--
19	Actual outside temperature	-50. +50	°C	--

Maintenance

23	Restore factory presets Press +&- together for 3 seconds	0/1	-	0
50	Indication of faults	0...255		--



Heating Engineer Parameter Setting.

To enter the Heating Engineer Parameter Program, the door must be opened and the UP & DOWN Prog buttons must be depressed for at least 3 seconds until # 51 appears in the window.

A # between 51 & 95. will appear in a bracket on the left of the display window. These can be paged through by using the UP or DOWN buttons.

To alter or input the required data in the selected program line # use the + or - buttons.

To leave the Heating Engineer Parameter Setting Menu press the AUTO button.

<u>[Prog #]</u>	<u>Description of Prog #</u>	<u>Range</u>	<u>Preferred Setting</u>
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Service Values

51	Output Test		
	0 Automatic control	0...4	0
	1 All outputs off		
	2 Circulating pump on		
	3 Mixing Valve Open		
	4 Mixing Valve Closed		
52	Input Test		
	0 Flow temperature value	0...2	0
	1 Outside temperature value		
	2 Room temperature value		
53	Plant Type # refer to drawings at rear of manual (System Specific)	1...16	--
54	Display of nominal room temp set point.	1..12/0255	--

Actual Values

55	Actual value of flow temperature	1..4/0..140	--
56	Actual value of HWS temperature	0...140	--
57	Actual value of boiler flow temperature. (Not always available.)	0...140	--
60	Display of boiler error codes	1...255	--
62	Display of PPS communication	0...15 0...255	--
	0000 PPS Short Circuit		
	--- No communication		
	0...15 Address Display on Left		
	0...255 Device Identification Display on Right		

Space Heating

63	Room Unit Type 0 Analog 1 Digital (RE3231 [QAA70] or QAA50)	0 / 1	1
63	Parallel displacement of heating curve	-4.5- +4.5	0
65	Room temperature Influence 0 Inactive 1 Active	0 / 1	1
67	Room temperature pump switching differential Higher = Less stable temperature Lower = More stable temperature ----- Inactive.	---/0.5..4	1
68	Minimum limitation of flow temperature.	8...95	8
69	Maximum limitation of flow temperature.	8...95	82
70	Type of build construction 0 Heavy 1 Light	0/1	1
71	Automatic adaptation of heating curve. 0 Inactive 1 Active	0/1	0

HWS

80	Reduced HWS temperature set point	8..70	40
81	HWS time control 0. 24 hours per day. 1. As local heating times. 2. As local heating times with 1 hour shift. 3. As system heating times with 1 hour shift	0..3	1

LPB Communication Setting

85	LPB control device address 0. Standalone single RVA46 1. Master RVA47 cascade manager with sensors attached. 2...16 Slave RVA46s operating from master RVA47.(House Number.) (Each subsequent RVA46 should be given consecutive numbers.)	0..16	2
86	LPB control segment address 0. Heat generator. (Street Name.) 1....14 Heat consumer.	0..14	1
87	Clock mode. 1 System time,	1..2	2

	2	System time with adjustment.		
88		Summer / Winter change over function. 0. Inactive. 1. Central change over of all heating circuits	0..1	0
92		LPB Bus power supply. 0. Off. 1. On.	0..1	1
93		Operation of LPB power supply.	On / Off	--
94		Display of LPB communication.	On / Off	--
95		Source of Outside air temperature --. -- No Signal. 00.01..14.16. Address	00.01..14.16	--

OEM Parameter Setting.

To enter the OEM Parameter Program, the door must be opened and the UP & DOWN Prog buttons must be depressed for at least 10 seconds until 00000 appears in the window.

The 00000 display must be changed to 11111 by inputting a password.
The password for the RVA 46 is DOWN, DOWN, PLUS, MINUS, UP.
(Older units DOWN, UP, PLUS, MINUS, PLUS.)

A # between 22 & 91. will appear in a bracket on the left of the display window.
These can be paged through by using the UP or DOWN buttons.

To alter or input the required data in the selected program line # use the + or - buttons.

To leave the OEM Parameter Setting Menu press the AUTO button.

<u>[Prog #]</u>	<u>Description of Prog #</u>	<u>Range.</u>	<u>Preferred Setting</u>
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Space Heating OEM

22	Room influence gain factor.	0..20	4
23	Quick setback constant. (Room sensor dependant) Increase. Setback will become longer Decrease. Setback time will become shorter	0..20	8
24	Boost of room temperature set point. (Room sensor dependant) Increase. Heat up time reduced. Decreased. Heat up time increased.	0..20	5
25	Frost protection program 0. Frost protection program switched. Off 1. Frost protection program switched. On	0..1	1
26	Boost of boiler temperature Set point	0...50	10

HWS

31	Maximum HWS set point	8...80	60
35	HWS Priority. 0 Absolute 1 Shifting 2 None (Parallel operation with heating.)	0..2	1

General

41	Display default 0. Day # Time of Day.	0..1	0
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1. VT Circuit flow temperature.

42	Heat gains Increase. If gains are high. Decrease If gains are low.	-2...+4	0
43	Curve Adaptation 1 sensitivity Outside air range between 4-12 ⁰ C	1...15	15
44	Curve Adaptation 2 sensitivity Outside air range below 4 ⁰ C	1...15	15
91	Software Version	00.0...99.9	--